Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A method of forming a seal in ~~a fuel~~an electrochemical cell assembly comprising a plurality of separate elements, the method comprising:

(a) assembling the separate elements of the fuel cell together;

(b) providing at least one groove network extending through the separate elements and a filling port open to the exterior and in communication with the at least one groove network;

(c) connecting a source of ~~uncured~~ liquid seal material to the filling port and injecting the seal material into the at least one groove network to fill the at least one groove network and simultaneously venting gas from the at least one groove network; and

(d) ~~curing~~ causing the seal material to set, to form a seal in the at least one groove network.

Claim 2. (currently amended) A method as claimed in claim 1, which includes filling the at least one groove network for a predetermined time at a predetermined pressure, to ensure filling of the at least one groove network.

Claim 3. (currently amended) A method as claimed in claim 2, which includes providing said separate elements with groove segments, for forming the at least one groove network, and cleaning the groove segments prior to assembling the separate elements, to promote bonding of the seal material to the separate elements.

Claim 4. (original) A method as claimed in claim 3, which includes providing surfaces of the separate elements with a primer, to promote bonding of the seal material thereto.

Claim 5. (original) A method as claimed in claim 4, which includes priming the separate elements by one of:

applying a primer in liquid form to the separate elements;

plating a primer onto the separate elements; and

incorporating a primer material within the material of selected separate elements so as to improve the bonding capability of the surface of each such separate element to the seal material.

Claim 6. (original) A method as claimed in claim 2, which includes providing a liquid silicone elastomeric material as the seal material and curing the seal material at an elevated temperature for a predetermined time.

Claim 7. (original) A method as claimed in claim 6, which includes curing the seal material by passing heated water through the fuel cell assembly.

Claim 8. (original) A method is claimed in claim 6, which includes preheating the assembled stack, prior to filling with groove network with seal material.

Claim 9. (currently amended) A method ~~as claimed in claim 2~~of forming a seal in an electrochemical cell assembly comprising a plurality of separate elements, the method comprising:

(a)~~, which includes~~ providing the separate elements with groove segments ~~for~~ to form~~ing~~ ~~the~~ at least one groove network~~,~~;

(b) assembling the separate elements together in abutting relationship;

(c) ~~and~~providing a filling port open to the exterior and in communication with the at least one groove network;

(d) connecting a source of liquid seal material to the filling port and injecting the seal material into the at least one groove network to fill the at least one groove network, the seal material being injected for a predetermined time and at a predetermined pressure, to ensure filling of the at least one groove network, while simultaneously venting gas from the at least one groove network; and

(e) causing the seal material to set to form a seal in the at least one groove network.

~~clamping the separate elements together, prior to injecting the seal material into the groove network.~~

Claim 10. (original) A method as claimed in 9, which includes mounting the assembled elements in a mold and injecting the seal material around the exterior of the fuel cell assembly and simultaneously permitting seal material to flow into the groove network from the exterior, thereby to form said seal and to insulate said stack.

Claim 11. (original) A method as claimed in claim 9, which includes providing a membrane electrode assembly a proton exchange membrane and gas diffusion media on both sides of the proton exchange membrane, and providing the proton exchange membrane with an external mounting flange, and causing the seal material to bond to the mounting flange, to seal the membrane exchange assembly in position.

Claim 12. (original) A method as claimed in claim 9, which includes providing a membrane electrode assembly including a proton exchange membrane and gas diffusion media on both sides of the proton exchange membrane, and having the seal material to bond to the proton exchange membrane.

Claim 13. (original) A method as claimed in claim 11, which includes providing a plurality of fuel cells within the fuel cell stack, providing each fuel cell with a pair of flow field plates, providing the mounting flange and the gas diffusion media extending to

peripheries of the flow field plates and providing a seal for each fuel cell around the edges of the flange and the gas diffusion media and bonded to the flow field plates.

Claim 14. (original) A method as claimed in claim 12, which includes providing a plurality of fuel cells within the fuel stack, providing each fuel cell with a pair of flow field plates, providing the proton exchange membrane and the gas diffusion media extending to peripheries of the flow field plates and providing a seal for each fuel cell around the edges of the proton exchange membrane and the gas diffusion media and bonded to the flow field plates.

Claim 15. (original) A method as claimed in 9, which includes, for each fuel cell in the fuel cell assembly, providing an anode flow field plate and a cathode flow field plate having facing, front surfaces, providing groove segments in said facing, front faces of the anode and cathode flow field plates defining a groove extending around the periphery of the membrane exchange assembly, and providing the membrane exchange assembly with a periphery which terminates in said groove without extending all the way across the groove.

16. (currently amended) A method as claimed in 9, which includes aligning the separate elements and clamping the said separate elements to apply a clamping pressure, prior to injecting the seal material.

17. (original) A method as claimed in claim 3, which includes providing a proton exchange membrane between the anode and cathode flow field plates and, providing a gas diffusion layer on either side of the proton exchange, providing each of the anode and cathode flow field plates with a recess to accommodate one of the gas diffusion layers, and clamping the anode and cathode flow field plates, such that pressure on the gas diffusion layers is determined by depths of said recesses and is unaffected by injection of the seal material.

18. (original) A method as claimed in claim 16, which includes, after curing the seal material, one of removing the clamping of the elements whereby the seal material maintains the separate elements bonded to one another, and adjusting the clamping pressure to a final clamping pressure.

19. (original) A method as claimed in claim 16, which includes, after clamping the separate elements together, mounting the separate elements in a mold and providing connection apertures between the groove network within the fuel cell assembly and the exterior thereof, and injecting the seal material into the mold around the exterior of the fuel cell assembly, whereby the seal material covers the exterior of the fuel cell assembly and flows through said connection apertures into the internal groove network.

20. (original) A method as claimed in claim 19, which includes providing the mold with a profile to define individual external seals at joints between adjacent elements of the fuel cell.

21. (original) A method as claimed in claim 1, which includes forming at least one vent for venting air from the groove network by scratching a surface of at least one of said separate elements.

22. (original) A method as claimed in claim 2, which includes providing, for each fuel cell, a proton exchange membrane, and opposed cathode and anode flow field plates on either side of the proton exchange membrane, and offset grooves in the opposed flow field plates to prevent distortion of the proton exchange membrane during delivery of the liquid seal material.

23. (original) A method as claimed in claim 1, which includes delivering the liquid seal material at a pressure in the range 1-2000 psig, more preferably in the range of 80-300 psig.

24. (original) A method as claimed in claim 1, which includes providing at least two separate groove networks, injecting a separate liquid seal material into each groove network of the fuel cell and selecting the composition of each liquid seal material, to provide compatibility with materials and liquids required for fuel cell operation and durability.

25. (cancelled)

26. (currently amended) A method as claimed in claim 1, in which the ~~curable elastomeric~~liquid seal material comprises at least one of: an ethylene/acrylic polymer; a fluoro elastomer; and an Ethylene Propylene Terpolymer.

27. (currently amended) A method as claimed in claim 1, in which the ~~curable elastomeric~~liquid seal material comprises one of a flexible ~~or~~ and a rigid epoxy resin, and wherein step (d) comprises curing the resin.

28. (currently amended) A method as claimed in claim 1, in which the ~~curable elastomeric~~liquid seal material comprises a thermoplastic elastomer, and wherein step (c) comprises supplying the thermoplastic elastomer in a liquid state, and step (d) comprises causing the thermoplastic elastomer to set..

29. (original) A method as claimed in claim 28, in which the thermoplastic elastomer comprises a polyester elastomer.

30. (currently amended) A method of forming a seal in an electrochemical cell assembly comprising a plurality of separate elements, the method comprising:

(a) assembling the separate elements of the electrochemical cell assembly together;

(b) providing at least one groove network extending through the separate elements and a filling port open to the exterior in communication with the at least one groove network;

(c) connecting a source of ~~uncured~~ liquid seal material to the filling port and injecting the seal material into the at least one groove network to fill the at least one groove network and simultaneously venting gas from the at least one groove network; and

(d) ~~curing~~ causing the seal material to set, to form a seal in the at least one groove network, to define at least one chamber for a fluid for operation of the electrochemical cell assembly.

31. (new) A method as claimed in claim 30, in which the liquid seal material comprises one of a flexible and a rigid epoxy resin, and wherein step (d) comprises curing the resin.

32. (new) A method as claimed in claim 31, in which the liquid seal material comprises a thermoplastic elastomer, and wherein step (c) comprises supplying the thermoplastic elastomer in a liquid state, and step (d) comprises causing the thermoplastic elastomer to set.